Chapter 16. Consumer Expenditures and Income

Consumer expenditure surveys are specialized studies in which the primary emphasis is on collecting data relating to family expenditures for goods and services used in day-to-day living. Expenditure surveys of the Bureau of Labor Statistics (BLS) also collect information on the amount and sources of family income, changes in savings and debts, and demographic and economic characteristics of family members.

IN THIS CHAPTER

Background

The Bureau's studies of family living conditions rank among its oldest data-collecting functions. The first nationwide expenditure survey was conducted in 1888-91 to study workers' spending patterns as elements of production costs. With special reference to competition in foreign trade, it emphasized the worker's role as a producer rather than as a consumer. In response to rapid price changes prior to the turn of the century, a second survey was conducted in 1901. These data provided the weights for an index of prices of food purchased by workers, which was used as a deflator for workers' incomes and expenditures for all kinds of goods until World War I. A third survey, spanning 1917-19, provided weights for computing a cost-of-living index, now known as the Consumer Price Index (CPI). The next major survey, covering only urban wage earners and clerical workers, was conducted in 1934-36, primarily to revise these weights.

During the economic depression of the 1930s, the use of consumer surveys extended from the study of the welfare of selected groups to more general economic analysis. Concurrent with its 1934-36 investigation, the Bureau cooperated with four other Federal agencies in a fifth survey, the 1935-36 study of consumer purchases, which presented consumption estimates for both urban and rural segments of the population. The sixth survey, in 1950, was an abbreviated version of the 1935-36 study, covering only urban consumers. The seventh survey, the 1960-61 Survey of Consumer Expenditures, which once again included both urban and rural families, provided the basis for revising the CPI weights and also supplied material for broader economic, social, and market analysis.

The next major survey to collect information on expenditures of householders in the United States was conducted in 1972-73. That survey, while providing continuity with the content of the Bureau's previous survey, departed from the past in its collection techniques. Unlike earlier surveys, the Bureau of the Census, under contract with BLS, conducted all sample selection and field work. Another significant change was the use of two independent surveys, a Diary survey and an Interview Panel Survey, to collect the information. A third major change was the switch from an annual recall to a quarterly recall (Interview survey) and daily recordkeeping of expenditures (Diary survey). These data were again used to revise the CPI weights.

The Current Survey

The need for more timely data than could be supplied by

surveys conducted every 10 to 12 years, intensified by the rapidly changing economic conditions of the 1970s, led to the initiation of the current, continuing survey in 1979. Unlike previous surveys, which occurred every 10 years or so, the latest survey has beeen ongoing since late 1979. Data are now available quarterly and annually. The collection of data is carried out by the Bureau of the Census under contract with BLS. The objectives of the survey remain the same: to provide the basis for revising the weights and associated pricing samples for the CPI and to meet the need for timely and detailed information on the spending patterns of different types of families.

Like the 1972-73 survey, the current survey consists of two separate surveys, each with a different data collection technique and sample. In the Interview survey, each consumer unit (CU) in the sample is interviewed every 3 months over five calendar quarters. The sample for each quarter is divided into three panels, with CU's being interviewed every 3 months in the same panel of every quarter. The Diary (or recordkeeping) survey is completed at home by the respondent family for two consecutive 1-week periods.

The sample housing unit is notified in advance by a letter informing the occupants about the purpose of the survey and the upcoming visit by the interviewer. Both surveys are conducted by personal visits with telephone usage limited to appointment scheduling and follow-up calls for information missed at the time of the proposed interview. The interviewer uses a structured questionnaire to collect both the demographic and expenditure data in the Interview survey. The demographic data in the Diary survey are collected by the interviewer whereas the expenditure data are entered on the diary form by the respondent. Both surveys accept proxy responses from any eligible household member who is at least 16 years old if an adult is not available after a few attempts to contact that person.

The unit for which expenditure reports are collected is the set of eligible individuals constituting a consumer unit, which is defined as (1) all members of a particular housing unit who are related by blood, marriage, adoption, or some other legal arrangement, such as foster children; (2) a person living alone or sharing a household with others, or living as a roomer in a private home, lodging house, or in permanent living quarters in a hotel or motel, but who is financially independent; or (3) two or more unrelated persons living together who pool their income to make joint expenditure decisions. Students living in university-sponsored housing are also included in the sample as separate CU's.

Survey participants record dollar amounts for goods and services purchased during the reporting period whether or not payment was made at the time of purchase. The expenditure amounts include all sales and excise taxes for all items purchased by the consumer unit for itself or for others. Excluded from both surveys are all business-related expenditures and expenditures for which the family is reimbursed.

The Interview survey collects detailed data on an estimated 60 to 70 percent of total family expenditures. In addition, global estimates, i.e., estimated average expenditures for a 3-month period, are obtained for food and other selected items. These global estimates account for an additional 20 to 25 percent of total expenditures. On the average, it takes approximately 90 to 120 minutes to complete the interview.

In the Diary survey, detailed data are collected on all expenditures made by consumer units during their participation in the survey. It is estimated that it takes approximately 15 minutes per visit for each of three visits for the interviewer to collect the demographic data and to instruct the respondent on how to keep the diary. It is also estimated that it will take the respondent about 15 minutes each day to complete the diary.

A reinterview program for the Consumer Expenditure Survey provides quality control. The program provides a means of evaluating individual interviewer performance to determine how well the procedures are being carried out in the field. The reinterview is conducted by a member of the supervisory staff. A subsample of approximately 6 percent of households in the Interview survey and 17 percent in the Diary survey are reinterviewed on an ongoing basis.

All data collected in both surveys are subject to Census and BLS confidentiality requirements which prevent the disclosure of the respondents' identities. All employees have taken an oath to this effect.

Interview survey

The Interview survey is designed to collect data on the types of expenditures which respondents can be expected to recall for a period of 3 months or longer. In general, expenses reported in the Interview survey are either relatively large, such as property, automobiles, or major appliances, or are expenses which occur on a fairly regular basis, such as rent, utility bills, or insurance premiums. Each occupied sample unit is interviewed once per quarter for five consecutive quarters. After the fifth interview, the sample unit is dropped from the survey and replaced by a new consumer unit. For the survey as a whole, 20 percent of the sample is dropped and a new group added each quarter. New families are introduced into the sample on a regular basis as other families complete their participation. Another feature of the current survey is that data collected in each quarter are considered independently, so that estimates are not dependent upon a family participating in the survey for a full five quarters.

For the initial interview, information is collected on demographic and family characteristics and on the inventory of major durable goods of each consumer unit. Expenditure information is also collected in this interview, using a 1-month recall, but is used, along with the inventory informa-

tion, solely for bounding purposes, i.e, to classify the unit for analysis and to prevent duplicate reporting of expenditures in subsequent interviews.

The second through fifth interviews use uniform questionnaires to collect expenditure information in each quarter. Data collected in these questionnaires which are arranged by major expenditure component (e.g., housing, transportation, medical, education), form the basis of the expenditure estimates derived from the Interview survey. Wage, salary, and other information on the employment of each CU member is also collected or updated in each of these interviews. The expenditure data are collected via two major types of questions asked. The first type of question asks for the purchase month directly for each reported expenditure. The second type of question asks for a quarterly amount of expenditures. The use of these two types of questions varies depending on the types of expenditures collected. Approximately 65 percent of the data were collected using the direct monthly method, whereas about 35 percent were collected using the quarterly recall approach.

In the fifth and final interview, an annual supplement is used to obtain a financial profile of the consumer unit. This profile consists of information on the income of the CU as a whole, including unemployment compensation; income from royalties, dividends, and estates; alimony and child support; etc. A 12-month recall period is used to collect income and asset type data.

Diary survey

The primary objective of the Diary survey is to obtain expenditure data on small, frequently purchased items which are normally difficult to recall. These items include detailed expenditures for food and beverages, both at home and in eating places; housekeeping supplies and services; nonprescription drugs; and personal care products and services. The Diary survey is not limited to these types of expenditures, but rather, includes all expenses which the consumer unit incurs during the survey week. Expenses incurred by family members while away from home overnight and for credit and installment plan payments are excluded.

Two separate questionnaires are used to collect Diary data: a Household Characteristics Questionnaire and a Record of Daily Expenses. The Household Characteristics Questionnaire is used to record information pertaining to age, sex, race, marital status, and family composition, as well as information on the work experience and earnings of each CU member. This socioeconomic information is used by BLS to classify the consumer unit for publication of statistical tables and for economic analysis. Data on household characteristics also provide the link in the integration of Diary expenditure data with Interview expenditure data for publishing a full profile of consumer expenditures by demographic characteristics.

The daily expense record is designed as a self-reporting, product-oriented diary on which respondents record a detailed description of all expenses for two consecutive 1-week periods. Data collected each week are considered independently. The diary is divided by day of purchase and by broad classifications of goods and services—a breakdown designed to aid the respondent when recording daily purchases. The items reported are subsequently coded by the Bureau of the Census so that BLS can aggregate individual purchases for representation in the Consumer Price Index and for presentation in statistical tables.

Integrated survey data

The integrated data from the BLS Diary and Interview surveys provide a complete accounting of consumer expenditures and income, which neither survey component alone is designed to do. Some expenditure items are collected only by either the Diary or Interview survey. For example, the Diary collects data on detailed food expenditures, which are not collected in the Interview. The Interview collects data for expenditures on overnight travel and information on reimbursements, such as for medical care costs or automobile repairs, which are not collected in the Diary. For items unique to one or the other survey, the choice of which survey to use as the source of data is obvious. However, there is considerable overlap in coverage between the surveys. Because of the overlap, the integration of the data presents the problem of determining the appropriate survey component from which to select the expenditure items. When data are available from both survey sources, the more reliable of the two is selected as determined by statistical methods. The selection of the survey source of items is evaluated periodically.

Processing

Due to differences in format and design, Diary and Interview survey data are processed separately. Diary questionnaires are coded and keyed at the Census Bureau Processing Center in Jeffersonville, IN, and are then transmitted to the Census Processing Center in Washington, DC, where computer processing is performed. Missing or invalid data on demographic or work experience are imputed. No imputation is done for missing data on expenditures or income. The families are assigned weights so that estimates can be derived that represent the total civilian noninstitutional population. Monthly Diary data tapes are transmitted to the Bureau of Labor Statistics. Beginning in late 1997, the monthly processing of Diary data will be done in a new integrated processing system under development at BLS.

As the monthly Diary data tapes are received, BLS combines the tapes into separate data bases that form calendar quarters. The data on these quarterly tapes are screened selectively for invalid coding and inconsistent relationships as well as for extreme values that may affect the reasonableness of estimates after the data are aggregated. All

errors of coding or extreme value are corrected before further processing.

Selected portions of the Diary data are also adjusted by automated imputation and allocation routines when respondents report insufficient detail to meet publication requirements. These procedures are performed annually on the data. The imputation routines assign qualifying information to data items when there is clear evidence of invalid nonresponse. For example, the qualifiers classify food expenditures by type of processing (i.e., fresh or frozen) and apparel expenditures by age and sex groupings of the members in the consumer units. Allocation routines are a means of transforming reports of nonspecific items into specific ones. For example, when respondents report expenditures for "meat" rather than beef or pork, allocations are performed using proportions derived from specific reports in other completed diaries to distribute the expenditure reported for "meat" to the specific items such as beef or pork.

Census processing of Interview survey questionnaires proceeds along similar lines. The questionnaires are completed and returned to the Jeffersonville processing center, where codes are applied to identify demographic characteristics, expenditures, income and assets, and other items such as make and model of automobile, and trip destination. Upon completion of the clerical processing, the data are keyed and transmitted to Washington where they pass through a detailed computer pre-edit. Inconsistencies, errors, and identification of missing questionnaires are transmitted back to the regional offices for reconciliation by the field staff through office review or interviewer followup. Corrections are keyed and transmitted to Washington, and again cycled through the computer pre-edit. This continues until errors identified by the pre-edit no longer appear. Once the pre-edit process is completed for a given month, data necessary for bounding are transcribed to the next quarter's questionnaire. The current quarter's questionnaire is sent to a regional processing office for microfilming and storage.

The data then go through a series of complex computer edits and adjustments which include the identification and correction of data irregularities and inconsistencies throughout the questionnaire. Other adjustments convert mortgage and vehicle payments into principal and interest (given associated data on the interest rate and term of the loan), eliminate business and other reimbursed expenses, apply appropriate sales taxes, and derive weights for individual questionnaires. In addition, demographic and work-experience items (except income) are imputed when missing or invalid.

The Bureau of Labor Statistics then constructs quarterly data bases and conducts an extensive review to ensure that severe data aberrations are corrected. The review takes place in several stages: A review of counts and means by region; a review of coding of family relationships for inconsistencies; a review of selected extreme values for expenditure and income categories; and a verification of the various data transformations performed by BLS. Cases of questionable data values or relationships are investigated by looking up questionnaires on microfilm. Errors are corrected prior to release of the data for public use.

Data imputation routines are carried out in the Interview survey to account for missing or inconsistent entries. The procedures are performed quarterly on the data . The routines, which affect all fields in the data base except income and assets, are intended to improve the estimates derived from the survey. Imputation in the Interview survey is done at the cell level with cells defined by variables such as income class, family size, region, and so on. The methods used—hot deck, weighting class, and percent distribution—depend on the types of expenditures. In addition, allocation routines are applied to the Interview data in a fashion similar to that for the Diary data.

Sample Design

Selection of households

The Consumer Expenditure Survey is a national probability sample of households designed to represent the total civilian noninstitutional population. The selection of households begins with the definition and selection of primary sampling units (PSU's), which consist of counties (or parts thereof), groups of counties, or independent cities. The set of sample PSU's used for the survey consists of 101 areas, of which 87 urban areas have also been selected by BLS for the Consumer Price Index program.

The sampling frame (i.e., the list from which housing units are chosen) for this survey is now generated from the 1990 census 100-percent detail file, which is augmented by a sample drawn from new construction permits and coverage improvement techniques to eliminate recognized deficiencies in the census. In addition, the sample for the Diary survey is doubled during the last 6 weeks of the year to collect expenditure data during the peak shopping period of the Christmas and New Year holidays.

The population of interest is the total U.S. civilian population. Within this framework, the eligible population includes all civilian noninstitutional persons (for example, those living in houses, condominiums, or apartments) and all people residing in group quarters such as housing facilities for students and workers. Military personnel living on base are not included.

The Bureau of the Census selected a sample of approximately 8,020 addresses to participate annually in the Diary survey. This results in an effective annual sample size of 5,870 households, since many diaries are not completed due to refusals, vacancies, ineligibility, or the nonexistence of the household address. The actual workload of diaries is spaced over 52 weeks of the year.

The Interview survey is a rotating panel survey in which approximately 8,910 addresses are contacted in each of the calendar quarters. Allowing for bounding interviews, which are not included in the estimates, and for nonresponse (in-

cluding vacancies), the number of completed interviews per quarter is targeted at 6,160. Each month, one-fifth of the units interviewed are new to the survey. Each panel is interviewed for five consecutive quarters and then dropped from the survey.

Cooperation levels

The response data for the Consumer Expenditure Survey are shown in text table 1 for the Interview and Diary surveys. The results are based on 1994 data. For the Interview survey, the total refers to housing units when a unique housing unit address is interviewed once each quarter for the year.

Type B and C nonresponses include housing vacancies, housing units under construction, housing units with temporary residents, destroyed or abandoned housing, and units converted to nonresidential use. Type A nonresponses are housing units which the interviewers were unable to contact or the respondents refused to participate in the survey. These response rates are based on the eligible housing units (i.e., the designated sample less type B and type C nonresponses).

Response data for the 1994 Consumer Expenditure Survey

Survey	Housing units designated for the survey	Type B or C non-response	Eligible			
			Total	Type A non-reponse	Responses	
					Number	Rate (percent)
Interview ..	29,775	5,143	24,632	4,115	20,517	83
Diary	17,063	3,583	13,480	2,596	10,884	81

Weighting

The statistical estimation of the population quantities of interest, such as the average expenditure on a particular item by a CU or the total number of CUs in a particular demographic group, is conducted via a weighting scheme. Each CU included in the survey is assigned a weight which is interpreted as representing the number of similar families in the universe of interest, the U.S. civilian noninstitutional population. Then the population total $T = \sum_{pop} y$, of a variable of interest y, is estimated as

$$\hat{T} = \sum_{i \in s} w_i y_i$$

where s denotes the sample and

w_i = the weight of the i^{th} CU in the sample,

y_i = the value of y for the i^{th} CU in the sample.

For example, y could be the amount spent on automobiles in a calendar quarter or y could be equal to 1 if the CU belonged to the northeast region of the U.S. and 0, otherwise. Then $\hat{T}$ would be the estimated total expenditures on automobiles or the estimated number of consumer units in the northeast.

The population average $\bar{Y}$ of y is estimated as

$$\bar{y} = \frac{\hat{T}}{\sum_{i \in s} w_i}.$$

If, for example, y represents the expenditure on butter by a CU in a given time period, then $\bar{y}$ is the estimated average spent on butter by U.S. families in that time period.

Several factors are involved in determining the weight for each sampled consumer unit for which a usable report is received. Each CU is initially assigned a base weight (*bswt*) which is the inverse of the probability of selection of that CU into the sample. The base weight is then ratio adjusted by the following factors in order to correct for certain nonsampling errors:

weighting control factor (*wcf*)…ratio adjusts for subsampling in the field

noninterview adjustment factor (*nif*) .....ratio adjusts for interviews that cannot be conducted in occupied households due to refusals or the fact that no one is home. This adjustment is based on region/ household tenure (owner or renter)/ CU-size/ race of reference person

second stage adjustment factor (*ss*) .....ratio adjusts for frame undercoverage based on the age/race/sex post-stratum of each person aged 14 years or above of every CU. This adjustment brings the person counts in those groups to the level of census based population counts.

The weight associated with a particular person in a CU is then the product

$$w = (bswt) \times (wcf) \times (nif) \times (ss).$$

The CU receives the weight of its “principal person,” who is generally the reference person. The reference person is the first person listed by the field representative when compiling a roster of all household members “starting with

someone who owns or rents this home." In a case where a husband and wife are both present, the principal person is always the wife, regardless of whether she was the reference person. The weight of the principal person is then further multiplied by a principal person factor (*pp*), which mainly ratio adjusts for under-coverage of CUs with only male reference persons. The resulting weight is then assigned to the CU. These weights are computed separately for the Diary survey and the Interview survey.

Beginning with 1984 data, an additional step in the weighting procedure was introduced to correct the inconsistent demographic estimates between the Diary and the Interview surveys. This step, called GLS (for generalized least squares) in the Consumer Expenditure Survey, is regression based. The weights of the CUs are adjusted so that the estimated total CU counts in selected published domains such as region, household tenure, and family type are the same from both the Diary and the Interview.

Beginning with 1997 data, a new calibration method will be introduced to compute weights in the Consumer Expenditure Survey. It will replace *ss*, *pp* and GLS above. The weights will be calculated using a model-assisted, design-based regression estimator. The adjustment to known population counts in order to account for frame under-coverage and to reduce variances through post-stratification will be accomplished via the auxiliary variables used in the regression model. The auxiliaries will be age, race, region, urban areas within region, and household tenure. The same auxiliary variables and an intercept will be included in both the Diary and the Interview. This results in equal estimated CU counts between the Diary and the Interview in those domains and the total population. The initial weights required for the computation will be equal to $(bswt) \times (wcf) \times (nif)$, described above. The possibility of extremely large or small weights is eliminated via constraints placed on the allowed departure of the final weight from the initial weight of each CU.

The precision of the above estimators is judged via their standard errors which are estimated using the method of balanced half sampling. In this method, a number (say, m) of replicate subsamples are formed from the set of sampled CUs. Each replicate subsample is approximately half the size of the original sample and is constructed to reflect the stratification and clustering used in the survey sampling scheme. Then, for example, the standard error of $\bar{y}$ above, is estimated by

$$\text{std. err.}(\bar{y}) = \sqrt{\frac{\sum_{j=1}^{m}\left(\bar{y}_j - \bar{y}\right)^2}{m}}$$

where $\bar{y}_j$ is the average estimated from the j^{th} replicate sample. Each $\bar{y}_j$ is computed using the same formula as $\bar{y}$ except the w_i correspond to the weights of the j^{th} replicate sample. Currently, the Consumer Expenditure Survey uses 44 replicates. (i.e., $m = 44$).

Presentation

Information from the Consumer Expenditure Survey is available in bulletins, reports, analytical papers, and on public-use tapes, CD-ROMs and diskettes. Data are also available on the Internet, the World Wide Web, and the BLS fax-on-demand service. Publications may be obtained through the BLS Office of Publications and Special Studies, the Chicago regional office of BLS, or from the Government Printing Office. Information on public-use tapes, CD-ROMs, and diskettes can be obtained from the BLS Division of Consumer Expenditure Surveys.

Publications from the Consumer Expenditures Survey generally include tabulations of average expenditures and income arrayed by family characteristics. Integrated Diary and Interview survey data are currently published on an annual basis while Interview data are published quarterly. Data tabulated for a given year or quarter are shown at a relatively aggregated level due to the small sample size of the survey. With several years of data from the current survey now available, however, estimates for several years may be combined to provide greater expenditure detail and additional classifications of families.

The public-use tapes and CD-ROMs contain microdata files of the actual expenditure and income reports of each family, but prevent identification of the family. In order to protect the identity of respondents, selected geographic detail is eliminated, thereby reducing the possibility that participating families may even be indirectly identified.

Diary and Interview survey tapes are available from the current survey back to the 1980 survey. Integrated survey data are not available on tape. Beginning with the 1988 data, BLS has released expenditure tapes containing files created directly from all the sections of the quarterly Interview survey. These are called the EXPN tapes and they include more detailed expenditure records than found on the Interview survey tapes. Microdata files for selected years are available on CD-ROM. A time series of microdata beginning with the 1984 data and consisting of demographic characteristics and summary-level expenditures are also available on CD-ROM. Also, tabulations of integrated survey data for the years 1984 through the present are available on diskettes.

Standard error tables applicable to Consumer Expenditure Survey data are available from the BLS national office upon request. These are cell specific and therefore extensive. Call (202) 691-6900.

Evaluation Research

The surveys undergo continuous evaluation by comparing Consumer Expenditure Survey results with other data

and by performing internal statistical analysis. In order to improve the expenditure estimates, research related to the data collection instruments and interview procedures began in the mid-1980s. During this time, BLS received funding from Congress to create a Survey Design Research Center. Shortly thereafter, in January 1987, a Questionnaire Design Advisory Conference was convened at the BLS. As a result of the recommendations received by the Bureau at this conference, combined with results from the underreporting studies, research on the cognitive aspects of the data collection process increased. Recent research has placed an emphasis on the use of cognitive techniques for investigating respondents' thought processes in response to survey questions, and developing alternative questionnaire formats and question phrasing. Attention has also been focused on the demands placed upon respondents' time.

A new diary form with more categories and expanded use of cues for respondents was introduced in 1991, based on results from earlier field and laboratory studies. In 1998, the Food Away from Home section of the diary will be revised in order to classify prepared food expenditures according to the types of establishments where they are purchased.

Recent research has focused on a variety of issues aimed at reducing respondent burden and improving the quality of survey data. These include examining the relative domains of the two Consumer Expenditure Survey instruments, finding ways to streamline the Interview survey questionnaire, and making the diary more "user friendly".

Uses and Limitations

The importance of the Consumer Expenditure Survey is that it allows data users to relate the expenditures and income of consumers to the characteristics of those consumers. The survey data are of value to government and private agencies interested in studying the welfare of particular segments of the population, such as the elderly, low-income families, urban families, and those receiving food stamps. The survey data are used by economic policymakers interested in the effects of policy changes on levels of living among diverse socioeconomic groups. Econometricians find the data useful in constructing economic models. Market researchers find them valuable in analyzing the demand for groups of goods and services. The Department of Commerce uses the survey data as a source of information for revising its benchmark estimates of some of the personal consumption expenditure components of the gross national product.

As in the past, the revision of the Consumer Price Index remains a primary reason for undertaking such an extensive survey. The results of the Consumer Expenditure Survey have been used to select new market baskets of goods and services for the index, to determine the relative importance of components, and to derive new cost weights for the baskets.

Sample surveys are subject to two types of errors, nonsampling and sampling. Nonsampling errors can be attributed to many sources, such as definitional difficulties, differences in the interpretation of questions, inability or unwillingness of the respondent to provide correct information, mistakes in coding or recording the data obtained, and other errors of collection, response, processing, coverage, estimation for missing data, and interviewer variability.

For the Interview survey, an analysis of time-in-sample and recall effects was done on the macro-level. Minimal-to-moderate conditioning effects were found in less than half of the published means. However, recall length effects were widespread and substantial among the expenditure classes for which the expenditure month is collected. For the Diary survey, research has examined the first-day bias and the use of recall. Comparisons between Diary and Interview surveys have recently included an analysis of seasonal patterns. Research on nonsampling error will continue.

Sampling errors occur because observations are not taken from the entire population. The standard error, which is the accepted measure for sampling error, is an estimate of the difference between the sample data and the data that would have been obtained from a complete census. The methodology employed to calculate the sampling variance is balanced half-sample replication. Standard error tables applicable to published BLS data can be obtained from the BLS Division of Consumer Expenditure Surveys.